LOS ALAMOS NATIONAL LABORATORY

CURRENTS

SEPTEMBER 2009

Federal stimulus funds boost Laboratory's environmental cleanup

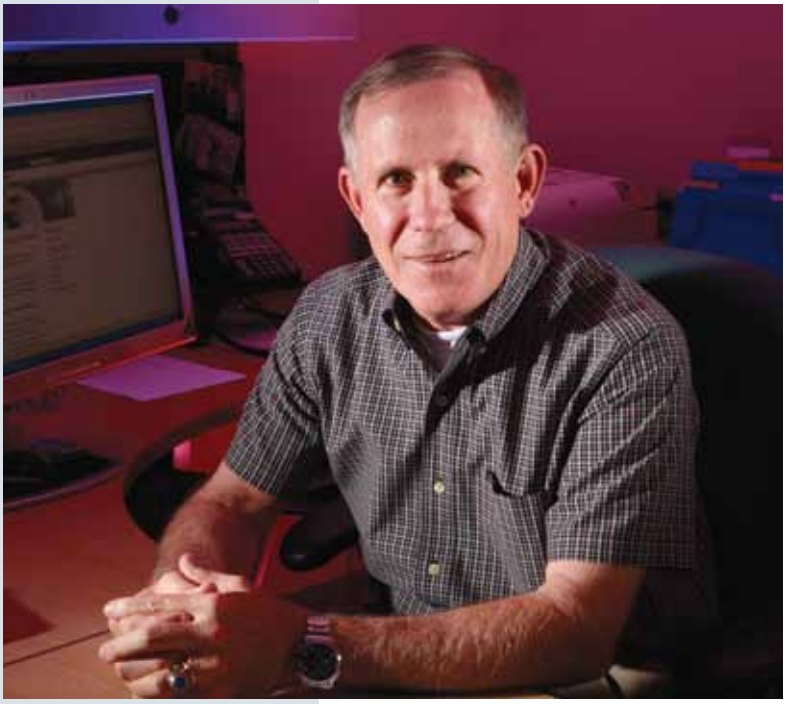
DNA dipstick lends ease and comfort to food safety

Multidisciplinary professional is a LANL Star

Ultimate team player inspires others

Los Alamos NATIONAL LABORATORY EST. 1943

ADSS Directorate supports Lab's ongoing missions and goals



LeRoy N. Sanchez

In my short time as the associate director for the Security and Safeguards Directorate, I've quickly learned that Los Alamos National Laboratory is a special place to work and serve our nation. The Laboratory supports not only the nation's nuclear weapons program but other programs important to the nation. This presents unique challenges in ensuring our information and physical security team support these programs and secure the special nuclear material and classified and sensitive information critical to the nation's security.

The entire security team works closely with other directorates to ensure our Laboratory security programs support ongoing missions and goals. For example, our Security Help Desk receives hundreds of calls a month from employees who have questions about policy and procedures or want to report a potential security incident, while our Security Integration Team immediately responds to potential security incidents to assist employees and their leadership in mitigating the consequences and understanding the root causes of incidents to prevent recurrence.

Moreover, the Lab's uniformed officers are charged with protecting our special nuclear material and providing a visible and credible deterrent to any potential adversary. We work with local, state, and federal law enforcement agencies to take advantage of their special capabilities in preventing and responding to any emergency.

In addition to security, the directorate also is responsible for emergency response operations. Our team of specialized and highly trained emergency response, management, planning, and preparedness personnel work very hard to ensure we have the plans and rehearse the immediate actions needed to protect life and property. Recently, the Laboratory initiated a round-the-clock Emergency Operations Center that provides a full and immediate incident response anytime, day or night.

Finally, I'm very impressed by the spirit of teamwork and professionalism at every level of the Lab. This is a highly complex environment in which to work and grow, and the challenges are immense. I look forward to providing the brand of leadership our employees deserve.

— Mike Lansing, associate director for Security and Safeguards

About the cover: Allan Chaloupka stands at the Technical Area 21 cleanup site. He is in charge of building decontamination and decommissioning for the project. See page 4 for story. Photo by Sandra Valdez.

Marquez elected to LANL Foundation Board of Directors

Laboratory Executive Director Richard Marquez recently was elected to the board of directors of the Los Alamos National Laboratory Foundation.

The board oversees all functions of the foundation, including its investment portfolio, the foundation's giving budget of $5 million, and its $1.4 million annual operating budget.

"I am a firm believer that education is a key to enabling human potential and opportunity to come together. In Northern New Mexico, the LANL Foundation is the epitome of facilitating that linkage for our youth," said Marquez.

He also serves on the boards of the Regional Development Corporation and the Northern New Mexico College Foundation.

Laboratory Director Michael Anastasio is a member-at-large of the LANL Foundation's Board of Directors while Susan Seestrom, associate director for experimental physical sciences, and Bill Wadt of the Contractor Assurance Office also are on the board.

Ben-Naim to serve on editorial board of scientific journal

Eli Ben-Naim of Physics of Condensed Matter and Complex Systems was invited to serve a three-year term on the editorial board of the *Journal of Physics A: Mathematical and Theoretical*.

The *Journal* is published by the Institute of Physics, a 30,000 member physics professional organization based in the United Kingdom. The *Journal* has a distinguished history in statistical, mathematical, and theoretical physics. It publishes research on the mathematical structures that describe fundamental processes of the physical world and on the analytical, computational, and numerical methods for exploring these structures.

Ben-Naim is a theoretician studying nonequilibrium statistical physics. His research focus is collective dynamics of interacting particle systems and interdisciplinary studies of complex systems.

Harding to lead Information Resource Management Division

James (Jim) Harding is the new Information Resource Management (IRM) Division leader. Harding joined the Laboratory in June 2006 as the IRM deputy division leader and has been acting division leader since May.

He has 35 years of experience in the information resource management field, including assignments in the Middle East and Asia, 17 years in the commercial nuclear industry, and 10 years as the office and administrative service manager at Nevada Test Site and Yucca Mountain.

Harding holds certifications in the Nuclear Information Records Management Association and the Association of Records Managers and Administrators.

Kolar honored with civic award from Daughters of the American Revolution

Chastity Kolar of Nuclear Material Management received the Daughters of the American Revolution's (DAR) 2009 National Outstanding Junior Award for her civic contributions to the community and state. As a junior member of DAR, Kolar promotes the aims and purposes of the national society, while also participating in community activities. She has participated and volunteered for numerous civic projects and for Los Alamos Medical Center's Hospital Auxiliary. She is a member of DAR's Valle Grande Chapter in Los Alamos.

Kolar started at the Lab in 1991 as a high school coop student.

Hopkins wins American In-house Design Awards

Allen Hopkins of Communication Arts and Services received five American In-House Design Awards for various design projects he worked on with the Environment, Safety, Health, and Quality Directorate.

Hopkins was one of 400 winners out of 4,000 entries. He has worked as a graphic designer at the Lab since 1993. He also worked at Christie's Great Estates designing publications, brochures, and pamphlets, as well as freelanced as a graphic designer and illustrator.

The award is sponsored by graphic design magazine *Graphic Design USA*.

Stimulus funding galvanizes environmental cleanup, creates jobs

Federal stimulus funds totaling $212 million are boosting the Laboratory's ongoing environmental cleanup projects and creating hundreds of jobs for New Mexicans.

"The projects are very important to Los Alamos and surrounding counties and pueblos from both an economic and environmental standpoint," said Everett Trollinger, federal program director for the American Recovery and Reinvestment Act (ARRA) within the Department of Energy's Los Alamos Site Office. "Completing them will be a major step forward in our cleanup responsibilities."

Sandra Valdez

Gabriel Gallegos saws through a pipe at the former Tritium Systems Test Assembly Facility at Technical Area 21.

Demolition of Cold War-era buildings

A large part of the ARRA funds will go toward demolishing more than 20 vacant buildings and structures in the Lab's Technical Area 21, including an empty former plutonium research and processing facility, said Allan Chaloupka of the TA-21 Closure Project, who is in charge of building decontamination and decommissioning.

Chaloupka has extensive experience in nuclear decommissioning, most recently at Hanford, Washington, with a Department of Energy project managed by Bechtel Hanford, Inc. There, he successfully managed the first full-scale decommissioning of a former plutonium processing facility and oversaw the interim safe storage of a plutonium production reactor and the decommissioning of beryllium-contaminated former fuel-fabrication facilities. At Aberdeen Proving Ground in Maryland, he oversaw the decommissioning of a chemical weapons stockpile.

Chaloupka said what he enjoys most about his work at Los Alamos is "the challenge of what we do, the extraordinarily talented employees we put together in teams to safely accomplish this work, and the satisfaction of seeing that the cleanup benefits the Laboratory and the community."

Jobs for New Mexicans

In May, the Lab began the competitive bidding process for the demolition work at TA-21. The Laboratory received 11 bids, including 7 from Northern New Mexico businesses, which were given preference in the selection process. "The idea was to use the cleanup funds in a manner that puts them into the local community fairly quickly… to save existing jobs and create new ones," Chaloupka said.

In mid-August, three small businesses—Los Alamos Technical Associates (LATA), Portage Inc., and ARSEC Environmental, LLC—were awarded subcontracts for up to $100 million. A fourth company is expected to be named shortly. The companies will use a streamlined process to bid for a number of individual demolition and cleanup tasks, with most tasks being "fixed price" subcontracts. The Laboratory estimates that at least 100 jobs will be created or saved in this phase alone of ARRA work.

Clean up of mystery dump site

Recovery Act funding also will allow environmental remediation specialists to clean up the Lab's first waste disposal area two years ahead of schedule, Chaloupka said. Known as Material Disposal Area B, the site covers about six acres and is fenced off from the public. It operated from 1944 until 1948.

Chaloupka explained that because no official waste inventory documentation exists for MDA B, Lab specialists spent the last two years determining what types of waste might be buried there. "We did a lot of detective work," said Mitch Goldberg of Environmental Programs. Based on old operational records, interviews with former Laboratory employees who worked at TA-21, and geological studies using ground-penetrating radar, scientists determined that materials dumped at the site most likely included clothing, wood, containers, and other materials. "It was expensive to bring materials to Los Alamos back then and people tended to recycle as much as they could," Goldberg noted.

Chaloupka said that less than 200 grams of plutonium 239 are spread over the six-acre site. "To put that in context, about 600 grams of plutonium are contained in a single transuranic high-activity waste drum," he said.

Chaloupka added that site preparations for the remediation effort, such as the construction of a haul road to be used by trucks on site, power distribution, air-monitoring equipment, and storm water pollution-prevention features, have been completed. In addition, personnel supporting the cleanup, such as the Lab's Emergency Management and Response team and Los Alamos County's emergency response personnel, have engaged in tabletop emergency exercises to ensure that remediation efforts are conducted safely and with minimal impact on local and area residents and businesses. Future emergency exercises are planned as work continues.

The project will be conducted in four operational stages: pre-excavation, excavation, waste handling, and characterization. Chaloupka said, startup activities already are underway, including removal of equipment from buildings slated for demolition and core sampling of the waste buried at MDA B.

"This is a very important and highly visible project, and we have lined up some of our best talent to make sure these funds are used as intended," Chaloupka said. He added that he looks forward to continuing his work on the TA-21 cleanup "so we can make DP Mesa available for some serviceable future use."

— *Tatjana K. Rosev*

"This is a very important and highly visible project, and we have lined up some of our best talent to make sure these funds are used as intended."

Recovery Act-funded environmental work at Los Alamos

Estimated funding: about $212 million

Jobs saved or created: more than 300 over two years

Estimated time of completion: September 30, 2011

The Lab will
- Remove hazardous or radioactive materials
- Demolish more than 170,000 square feet of buildings
- Install more than 15 new water-monitoring wells
- Monitor for chemical and radioactive contamination
- Work with Los Alamos County to coordinate emergency-response training
- Ship low-level radioactive waste during off-peak hours
- Minimize disruptions to nearby businesses

Pocket-sized pathogen detection

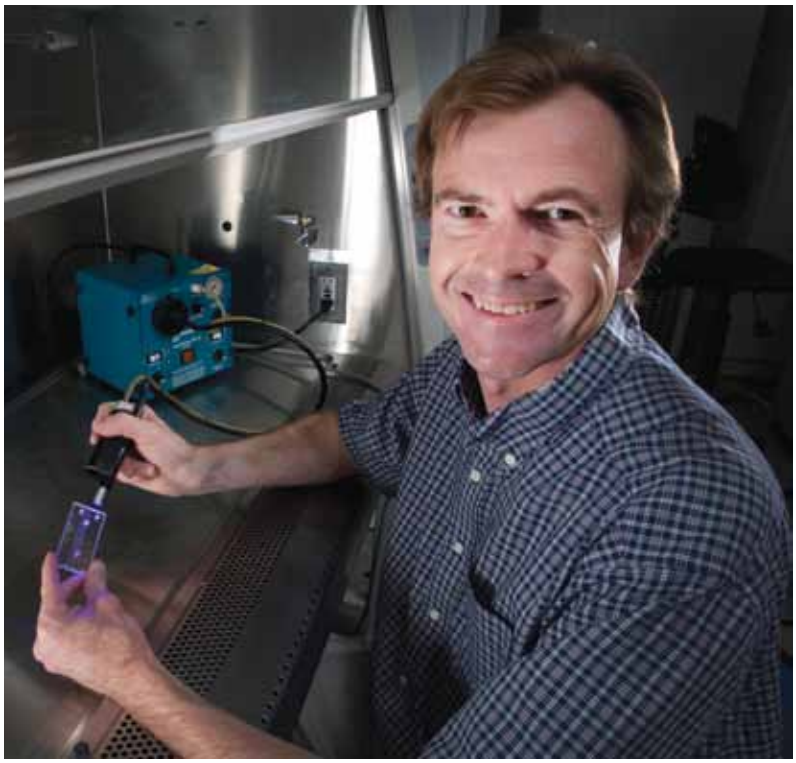
DNA dipstick lends ease and comfort to food safety

Recalls in recent years of spinach, tomatoes, and beef demanded time-consuming, costly laboratory tests to track down the origin of contamination. A new, simpler approach is being taken by Bruce Cary, staff member in Biosciences Division currently on entrepreneurial leave with Mesa Tech International Inc. of Santa Fe.

The company's "DNA dipstick" will allow fast, accurate food pathogen detection in a hand-held, battery-operated device that eliminates the need not only for expense and lab infrastructure, but also for user expertise.

"Our goal is to have a disposable device that anyone could pull out of their pocket to obtain nucleic acid sequence-level data within an hour regardless of where you might find yourself on the planet—whether it be in a village in a resource-limited country with no electricity or running water or in a food-processing plant in a first-world nation," said Cary.

Developed at the Laboratory, the technology is expected to detect multiple pathogens at once and will complement research funded by the National Institutes of Health—for diagnosis of influenza and other viral and bacterial infections in humans—and by the Citrus Research Board—for detecting and identifying the diseases of agricultural crops.



LeRoy N. Sanchez

Bruce Cary handles the "DNA dipstick," which quickly and accurately detects food pathogens.

Future uses of the DNA dipstick may include detecting meat products in supposedly vegetarian foodstuff, as well as certain individualized medicine and individual susceptibility testing applications and tests for the evaluation of therapeutic efficacy.

Mesa Tech envisions that the first products will be available in two years with a more refined device in three. Helping to make this goal possible is a recent award by the LANS Venture Acceleration Fund of approximately $100,000. Other recipients of the August VAF award include Adaptive Radio Technologies, ThermaSun Inc., and Los Alamos Visualization Associates.

Cary credits the Lab's Entrepreneurial Leave Program as a way for him to explore avenues for development and commercialization of this important new technology while maintaining some of the benefits and security of Lab employment.

"The program is beneficial not only to Laboratory scientists but also to the broader Northern New Mexico economy and community, as it represents a means for encouraging LANL scientists to participate in the development of a robust high-technology business sector right here in New Mexico," said Cary.

— Mig Owens

Stimulus funding to boost science, help the nation

Science at Los Alamos National Laboratory will get a boost in the near term thanks to funding from the American Reinvestment and Recovery Act, the "economic stimulus money" that everyone has heard so much about.

In addition to funding that the Laboratory has received for cleanup operations, Los Alamos has been awarded nearly $30 million for projects ranging from enhancing the Laboratory's equipment medical isotope production to developing an innovative polymer-based membrane technology to reduce the energy intensity and the greenhouse gas effect of processes used in the chemical, fuels, and power production industries.

Robb Kramer

Frank Valdez of Inorganic Isotope and Actinide Chemistry works manipulators at the hot cell in the Isotope Production Facility at the Los Alamos Neutron Science Center.

More money may be on its way. The Laboratory has submitted more than 100 science proposals for stimulus funding. Helping meet the nation's energy needs is a large focus of many of these proposals. Los Alamos scientists are hoping to capture stimulus funding to provide for collaboration with other institutions for development of biofuels from algae, extracting power from "clean coal" power initiatives, partnering with other national laboratories and universities on superconductor technologies, and working with our neighbors in Taos on enhanced solar power technologies.

Additionally, the Laboratory is involved in a statewide Smart Grid proposal, requesting $56 million of DOE ARRA funding. NEDO, Japan, has already committed more than $20 million to Los Alamos County for "smart meters" on homes in Los Alamos and elsewhere in the state.

While much of the stimulus funding is coming into the Laboratory through the U.S. Department of Energy, science funding also is available from the National Institutes of Health. The Laboratory is working to obtain funding for a variety of these projects, such as protecting the health of the nation by developing better immunology and vaccine protocols for emerging health threats like the H1N1 swine flu virus.

Stimulus funding has led to numerous partnerships with the state of New Mexico Recovery Office, industrial partners, other national labs, and leading universities across the nation.

"We are working to capture stimulus funding to enhance the Laboratory's scientific expertise in areas that are important to the nation's future in a sustainable manner that does not require the Laboratory to take on new, temporary personnel or programs," said Carolyn Zerkle, director of the Laboratory's Stimulus Project Office.

Laboratory personnel and other interested people can keep track of the Laboratory's stimulus funding activities through the stimulus Web site: *http://www.lanl.gov/stimulus_communication_center/*.

— James E. Rickman

Working with the BEST team and great colleagues makes a LANL Star shine

Brandy Duran of the Lab's Biological Emergency Support Team (BEST) could be called out to a national, biohazard emergency at a moment's notice, and she and her team would be more than equipped to respond.

BEST is a multidisciplinary group of environmental and hazardous materials professionals who are on call 24 hours a day, 365 days a year to support the Department of Homeland Security.

Duran of Inorganic, Isotope, and Actinide Chemistry said being on the BEST is just one part of her work at Los Alamos. She also heads the analytical capabilities for the Hydrotest Program's Vessel Team.

"This team is concerned with the use of vessels to contain hydrodynamic tests to mitigate potential environmental impacts from testing," she explained. "My role is very broad in that I perform various sampling and analysis to verify that we do in fact contain the experiments."

Duran also is a winner of two LANL Pollution Prevention awards. She identified disposal and recycling routes for more than 100 tons of material, and she developed a treatment process for mixed-waste streams that allowed for proper disposal of 1,000 pounds of material.

Richard Robinson

Brandy Duran holds an air monitor used to sample air inside confined spaces, such as vessels, for toxic gases.

Her hard work hasn't gone unnoticed. Duran recently was named a 2009 LANL Star. "I was surprised by the nomination, and I am very honored and humbled to be named a LANL Star," she said, adding that she shares the achievement with her coworkers.

"I thank my deputy group leader for nominating me, but I'm also indebted to my colleagues in the Hydrodynamic Experiments Division and on the BEST team, who I have the great honor to work with and who greatly contribute to my ability to shine," said Duran.

Being named a LANL Star she said will only drive her to maintain a good work ethic and continue to strive for excellence in everything she does.

"I'm very proud to work at the Laboratory and look forward to many more years of challenges," she added.

— *Erika L. Martinez*

Fieldwork unearths secrets of ancient volcanic province

Los Alamos researchers lead Earthwatch geophysics project

Early last year, Aviva Sussman and Emily Schultz-Fellenz were awarded a research grant for the Earthwatch Institute's Student Challenge Awards Program, paving the way for several girls from across the United States to experience the wonders of geophysics. With additional funding from the Lab's Community Programs Office and Los Alamos National Security, LLC, the two researchers from the Earth and Environmental Sciences Division recently set off with a team of high school students on an Earthwatch Expedition through parts of Colorado.

Along with University of New Mexico graduate student Stephanie Mason, Sussman and Schultz-Fellenz lead a project that is studying the tectonic evolution of the Rio Grande Rift, which extends north from Mexico, near El Paso, Texas, through New Mexico into central Colorado. The Rio Grande Rift generally is considered to be a "failed" rift valley, which was once more active than it is today, and it would prove to be an ideal classroom for the students.

Their fieldwork took place in southern Colorado's San Juan Mountains—an ancient volcanic province. The team collected rock samples along the rift to determine rock compositions and to distinguish between the different volcanic units. They also used advanced paleomagnetic technology at the University of New Mexico to determine the magnetism of their samples. Results will be used to determine how fault geometry within the rift affects regional water flow.

"We study the geological faults and volcanoes of the past to determine what that holds for the future, such as the possibility of further earthquakes and volcanic eruptions," said Schultz-Fellenz. Sussman noted that the research is an extension of a project funded by the Institute for Geophysics and Planetary Physics and on which she worked with former Los Alamos scientist Claudia Lewis.

In addition to regional implications, the research also is important to Department of Energy missions in the areas of homeland security and energy, Sussman said, pointing to research on carbon-sequestration, geothermal power, and tunnel detection.

"This is a fantastic opportunity to simultaneously help build the next generation of scientists and make progress in our research objectives," she added.

— *Erika L. Martinez*

Photos by Sandra Valdez

Above: Aviva Sussman operates a paleomagnetic drill to collect rock cores. Below: Emily Schultz-Fellenz measures the rock's compressive strength using a Schmidt hammer.

Employee picnic is September 26

Mark your calendars! The Laboratory's annual employee picnic will be held 11 a.m. to 4 p.m. September 26 at Overlook Park in White Rock.

This new venue provides plenty of space and parking for the "Family Fun Fest," an event filled to the brim with good family fun, great food and music, and games and activities for children as well as adults.

The picnic is open to all Laboratory employees and subcontractors and their families. No pets are allowed.

Fall 2009 Benefits Open Enrollment is coming

Open Enrollment 2009 for Los Alamos National Security, LLC employees is scheduled for November 2 to December 4. Employees and retirees are required to enroll in an offered medical plan so that they and their dependents can receive medical insurance during 2010.

Stay tuned for details about upcoming information sessions in October.

Flu season: two separate vaccines available soon

Seasonal flu vaccinations will be available through Occupational Medicine, the New Mexico Department of Health, local medical providers, and at the Los Alamos County Health Fair scheduled for October 24. Details will be announced. This vaccine offers no protection against 2009-H1N1 influenza. The vaccine for H1N1, which is anticipated to be released in mid-to-late October, will be controlled and distributed by the New Mexico Department of Health. It is unclear at this time whether the Laboratory will be allocated vaccine to distribute.

Associate Directorates received a influenza toolkit with information and strategies to protect their employees from the flu. For more information, employees can visit the Occupational Medicine Web page at *http://int.lanl.gov/health/occmed/swine_flu.shtml*.

Laboratory retirees can visit the New Department of Health Web page at *http://www.health.state.nm.us/H1N1/index.shtml* for information on seasonal and H1N1 flu.

Subcontracts awarded for architectural and engineering services at Lab

Six small businesses received subcontracts totaling up to $200 million for providing architectural and engineering services to the Laboratory.

The businesses receiving the subcontracts from Los Alamos National Security, LLC are Lopez Engineering, Inc., Merrick & Company; Mosaic-STC, A Joint Venture, Professional Project Service, Inc., Vigil Enterprises, Inc., and Weidlinger-Navarro Northern New Mexico Joint Venture.

These six small businesses represent a total of 41 firms, both large and small, that teamed to compete for architecture and engineering contract work. Three of the businesses are located in Northern New Mexico while the other three have strong roots in the region through their teaming arrangements.

The subcontracts, which run five years, call for the companies to augment in-house design engineering capabilities at the Laboratory.

Special Lab scouting effort targets women and minorities

Los Alamos recruiters will visit 15 universities and 5 professional career fair events this fall specifically to spot exceptional women and minority student, postdoc, and career candidates. The events were selected through a Laboratorywide planning session sponsored by the Recruitment Diversity Working Group and the Office of Equal Opportunity and Diversity.

Unofficial foreign travel to a sensitive country

Planning a vacation? Employees who intend to visit a country deemed sensitive by the Department of State must submit Form 1743, Notification of Unofficial Foreign Travel to a Sensitive Country, 30 days before the travel date. See *http://int.lanl.gov/security/documents/security-smart/foreigntravel_0806.pdf* for more information.

September service anniversaries

Find the September service anniversaries online at *http://www.lanl.gov/news/currents/2009/sept/anniversaries.shtml*.

In Memoriam

- Maynard Elliot Smith, 92, died July 11
- Hugh Roberts Lehman, 88, died July 15
- Berlyn Brixner, 98, died August 1
- Louis Rosen, 91, died August 15
- Tony Beugelsdijk, 59, died August 21

Develop employees and create a work environment to achieve employee and Laboratory success

Imagining the future during LANL Leadership Summits

How can Sir Ernest Shackleton's unsuccessful 1914 Antarctic expedition and the history of the Laboratory following the Manhattan Project provide perspective on today's challenges in defining the Laboratory's future? During LANL Leadership Summit II in July and August, Director Michael Anastasio asked managers to think about the leadership lessons contained in these and other case studies and to draw on the lessons in aligning their organizations to the institutional strategic direction.

Leadership Summit I earlier this year provided a forum in which Laboratory managers gained exposure to and participated in discussions on a common set of leadership ideas and best practices. The concepts were introduced and discussed within a Laboratory context and with other Lab leaders. Leadership Summit II was designed to align engaged leadership to the overall institutional vision of excellence and national service. Future summits will continue to bring leaders together to think about and discuss how best to imagine and help bring about what the Laboratory can be.

Anastasio told Leadership Summit II participants that it will take the contributions of all employees for Los Alamos to be the national security science laboratory serving the national interest. Anastasio said the Lab depends on everyone to get things done and deliver on what the country will need in the days ahead, from the sciences and engineering to payroll, policy, and administrative support.

The LANL Leadership Summits are a team effort of the Laboratory's senior managers, with the director, deputy director, principal associate directors, and associate directors designing and presenting the events. "We developed the Summits to engage Laboratory leaders at all levels of the institution in taking an active responsibility for their individual and collective leadership," said Mike Mallory, principal associate director for operations.

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Or Current Resident

Helping others meet their full potential

Working together and having a positive outlook are the keys to success, according to Jutta Kayser of Ethics and Audit.

A Laboratory employee since 2002, Kayser is the ultimate team player. She chairs the Women's Employee Resource Group, which sponsors the Women's Career Development Mentoring Awards. She also is a coordinator for the annual Expanding Your Horizons conference, which introduces junior high and high school girls to math and science.

"I am a very positive person and love dealing with people," said Kayser, an administrative operations specialist in Ethics and Audit. "I think it's important to provide expert service to my organization to help achieve division goals and objectives in a team effort, thus helping the Laboratory meet its milestones."

Laboratory organizations, Kayser said, should work collaboratively, respectfully, and professionally with one another. "We are all in the same boat, and a friendly word or thank you can really go a long way. I think I inspire people with my positive attitude and energy," she said.

Kayser likes to recognize women at the Lab who perform outstanding work. "The programs I have participated in, like the LANL Star Award program, recognize the many wonderful women at the Laboratory who go above and beyond the call of duty to make important contributions to the Laboratory and the community," she said.

Kayser said she was surprised and honored when she was named a 2007 LANL Star. "Recognitions like this inspire me to do even more," she said. "I think it's important to foster mutual respect and understanding, and I feel that I can make a difference by devoting my time and energy to the various activities I am involved in."

Kayser's positive nature and willingness to lend a hand don't stop when she leaves work. She's also a volunteer for the Northern New Mexico Big Brothers Big Sisters Lunch Buddy Program.

— *Erika L. Martinez*

LeRoy N. Sanchez

Jutta Kayser inspires colleagues with her positive attitude and energy.

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